

IN THE CLAIMS

We claim:

1. A coolable infrared radiator element of quartz glass, comprising:

at least one heating tube, which has a gas-tight current lead-through at each of its two ends;

a long, stretched-out electrical heating conductor provided in the heating tube to serve as a radiation source;

at least one cooling element, which has at least one cooling channel for a liquid coolant; and

a metallic reflector in a region of the heating conductor, the metallic reflector having at least one reflective surface which, when seen in cross section, describes a line around a surface, an opening for passage of at least some of the liquid coolant being provided in a region of this surface.

2. An infrared radiator element according to claim 1, wherein the reflector is a layer of metal and the cooling element is a cooling tube with at least one cooling channel directly adjacent to the heating tube, the at least one cooling channel being lined with the metal layer.

3. An infrared radiator element according to claim 1, wherein the reflector is a thin-walled piece of metal and the cooling element is a cooling tube with at least one cooling channel directly adjacent to the heating tube, the cooling channel being lined with the metal piece.

4. An infrared radiator element according to claim 1, wherein the reflector is a thin-walled metal part and the cooling element is a cooling tube surrounding the at least one heating tube, the thin-walled metal part being inserted into the cooling tube.

5. An infrared radiator element according to claim 1, wherein the cooling element is a metallic reflector that encloses no more than 50% of a circumference of a outer wall of the at least one heating tube.

6. An infrared radiator element according to claim 5, wherein the reflector has at least two cooling channels for transporting the coolant.

7. An infrared radiator according to claim 1, wherein the heating conductor consists of tungsten, and the heating tube is filled with an inert gas doped with a halogen.

8. An infrared radiator according to claim 7, wherein the halogen doping agent is one of ammonium bromide and copper bromide.

9. An infrared radiator element according to claim 7, and further comprising an electrical connecting lead provided between the heating conductor and each of the gas-tight current lead-throughs, the connecting lead having a diameter so that the connecting lead heats up to a temperature of about 600° to about 800°C at a rated output as a result of its electrical resistance.

10. An infrared radiator element according to claim 1, wherein the heating conductor is a carbon ribbon and the heating tube is filled with a noble gas.

11. An infrared radiator element according to claim 1, wherein the heating conductor is a carbon ribbon and the heating tube is evacuated.

12. An infrared radiator element according to claim 1, wherein a first and a second heating tube are present, a part of a wall surface of the first heating tube is simultaneously a wall surface of the second heating tube.

13. An infrared radiator element according to claim 1, wherein the heating tube and the cooling element are curved.

14. An infrared radiator element according to claim 13, wherein the two -gas-tight current lead-throughs of the heating tube point in a common direction and are parallel to each other.

15. An infrared radiator element according to claim 1, wherein the heating tube has an inside diameter of about 10 to about 17 mm.

16. An infrared radiator element according to claim 15, wherein the heating conductor is coiled and has a coil diameter so that ratio of the coil diameter to an inside diameter of the heating tube is at least 1:3.